EC800000
ELECTRICAL

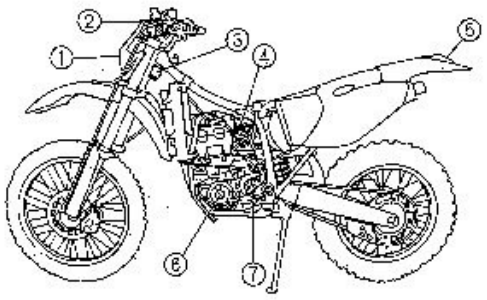
EC810000
ELECTRICAL COMPONENTS AND WIRING DIAGRAM

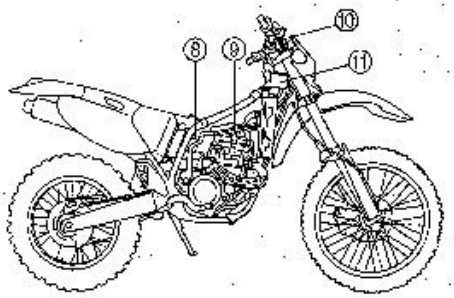
EC811020
ELECTRICAL COMPONENTS

① Headlight
② "ENGINE STOP" button
③ Regulator
④ TPS (throttle position sensor)
⑤ Tail light
⑥ CDI magneto
⑦ Neutral switch
⑧ Ignition coil
⑨ Spark plug
⑩ Lights switch
⑪ CDI unit

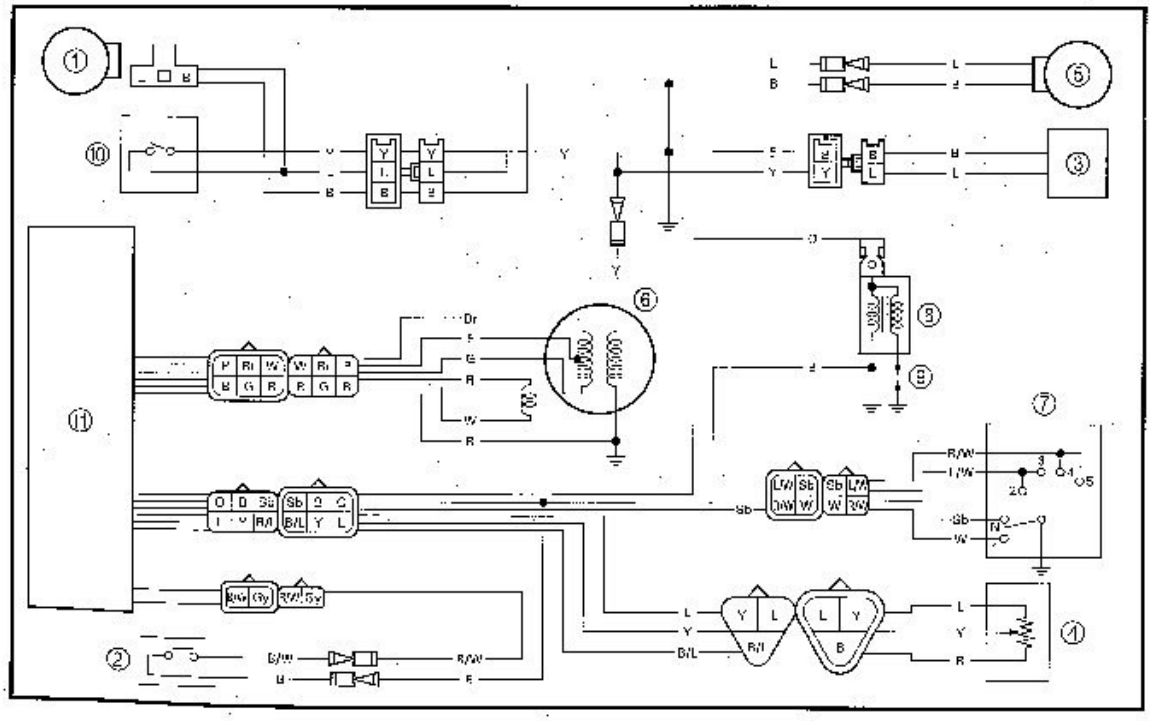
COLOR CODE

B	Black	Sb	Sky blue
Br	Brown	W	White
G	Green	Y	Yellow
Gy	Gray	B/L	Black/Blue
L	Blue	B/W	Black/White
O	Orange	L/W	Blue/White
P	Pink	R/W	Red/White
R	Red		





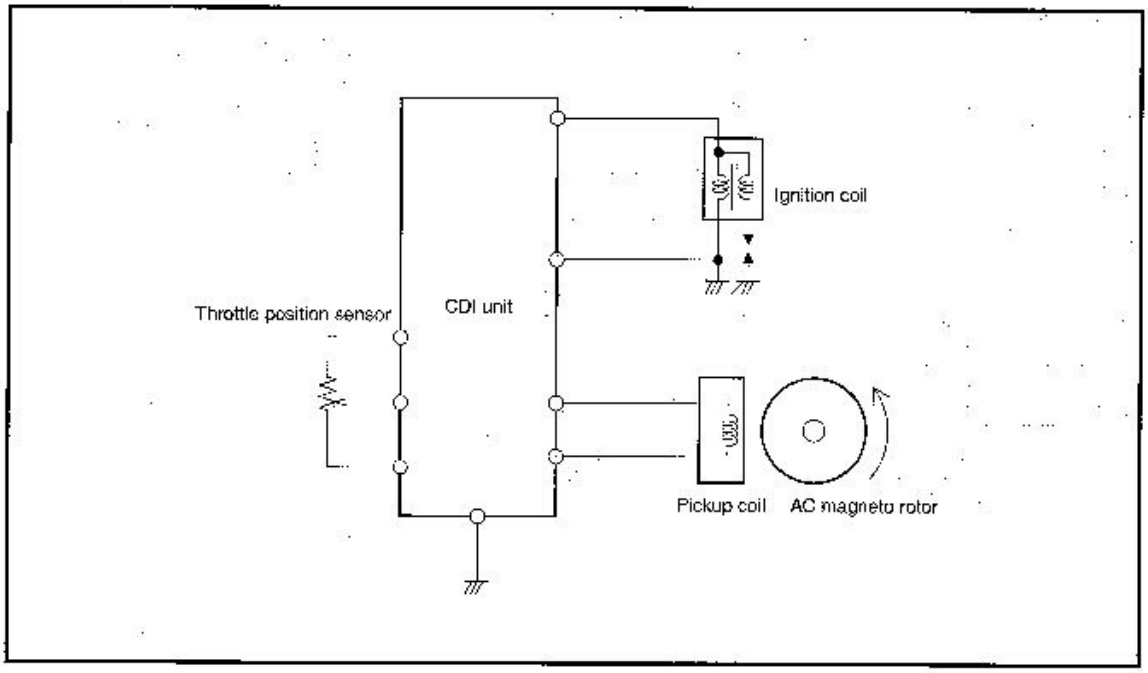
EC812000
WIRING DIAGRAM



MAP-CONTROLLED CDI UNIT

A map-controlled, CDI ignition system is used in the WR400F.

The microcomputer in the CDI unit detects the engine speed and throttle position, thus determining the optimum ignition timing through the entire operating range. In this way, quick throttle response can be achieved according to various riding conditions.

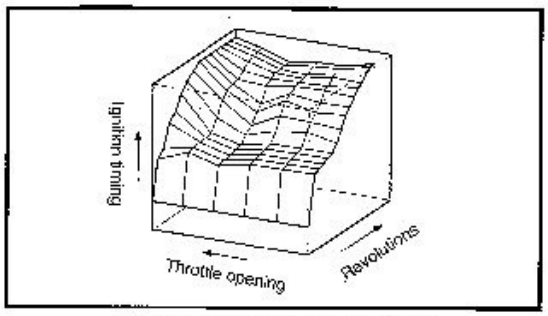


■ Function of Component

Component	Function
TPS (throttle position sensor)	Detects throttle valve opening and inputs it into the computer in the CDI unit as a throttle opening signal.
Pickup coil	Detects signal rotor revolutions and inputs them into the computer in the CDI unit as engine revolution signals.
CDI unit	The signals of the TPS and pickup coil sensor are analyzed by the computer in the CDI unit, which then adjusts ignition timing for the operation requirements.

■ Principal of 3-Dimensional Control

Conventionally, ignition timing was controlled only by engine revolutions (2-dimensional control). However, ignition timing needs advancement also by engine load. Thus, accurate ignition timing can be determined by adding throttle opening to determine ignition timing (3-dimensional control).

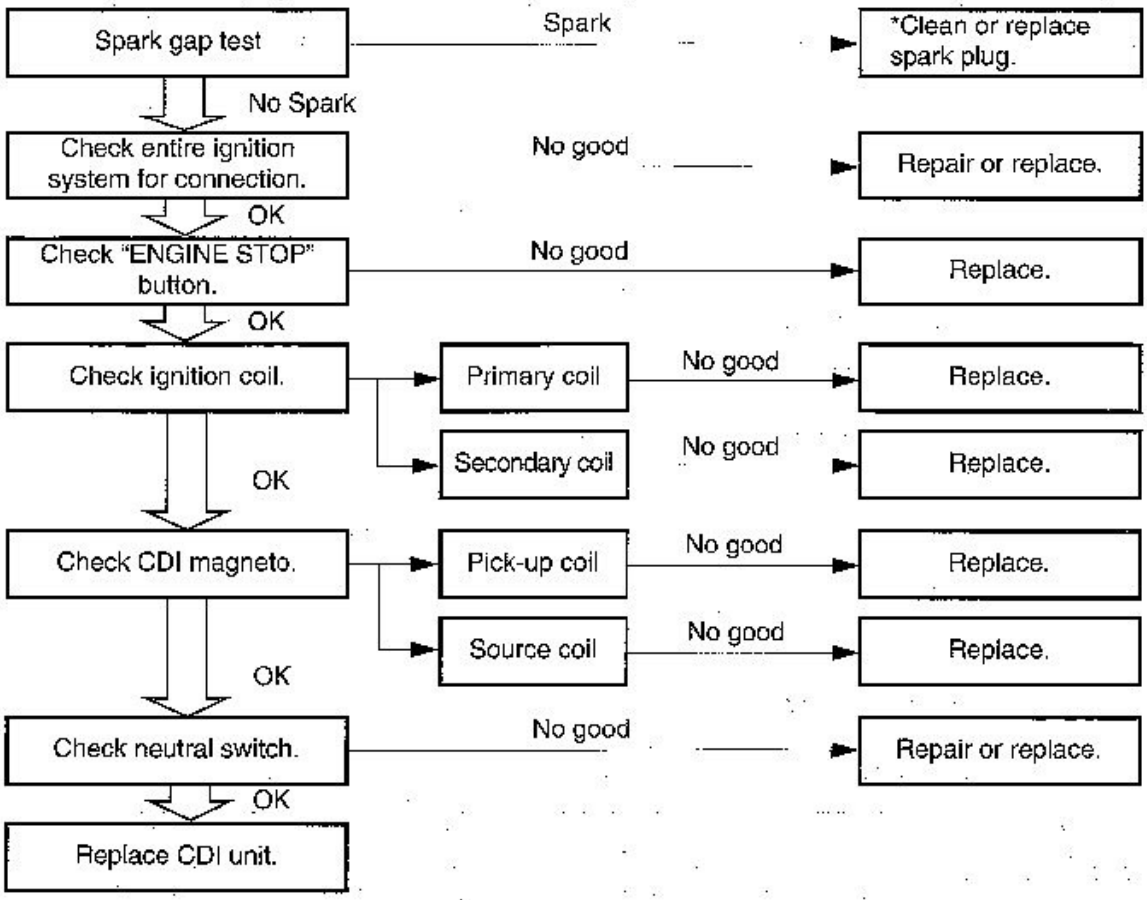


3-D Image Map of Ignition Timing
(different from actual characteristics)

EC623000
IGNITION SYSTEM

EC621001
INSPECTION STEPS

Use the following steps for checking the possibility of the malfunctioning engine being attributable to ignition system failure and for checking the spark plug which will not spark.



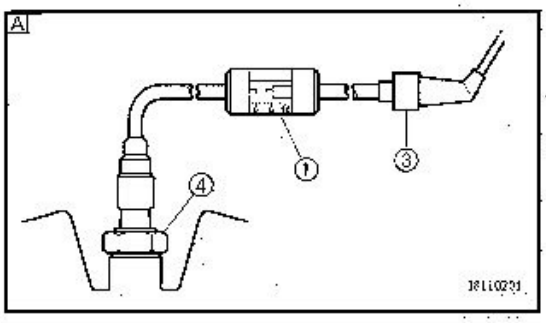
***: Only when the ignition checker is used.**

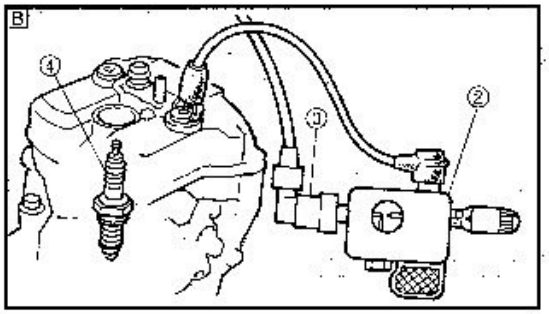
NOTE:

- Remove the following parts before inspection.
  1) Seat
  2) Fuel tank
- Use the following special tools in this inspection.

Dynamic spark tester:
YM-34487
Ignition checker:
90890-06754

Pocket tester:
YU-03112/90890-03112





EC822001
SPARK GAP TEST

1. Disconnect the spark plug cap from spark plug.
2. Connect the dynamic spark tester ① (ignition checker ②) as shown.
   - Spark plug cap ③
   - Spark plug ④

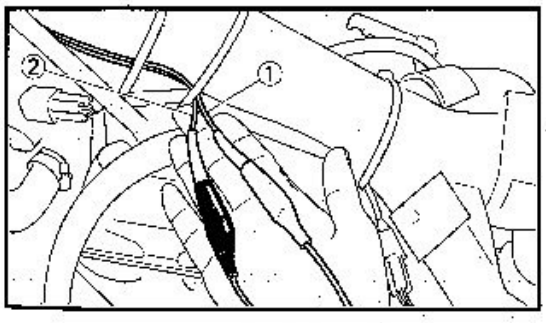
A For USA and CDN
B Except for USA and CDN

3. Kick the kick starter.
4. Check the ignition spark gap.
5. Start engine, and increase spark gap until misfire occurs. (for USA and CDN only)

Minimum spark gap: 6.0 mm (0.24 in)

EC824000
COUPLERS AND LEADS CONNECTION INSPECTION

1. Check:
   - Couplers and leads connection
     Rust/dust/looseness/short-circuit → Repair or replace.



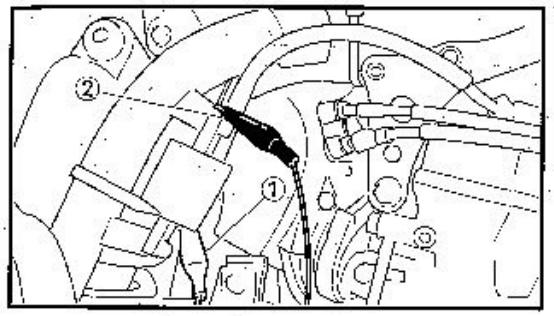
EC825001
"ENGINE STOP" BUTTON INSPECTION

1. Inspect:
   - "ENGINE STOP" button conduct

Tester (+) lead → Black/White lead ①
Tester (–) lead → Black lead ②

	B/W ①	B ②	Tester selector position
PUSH IN	○	○	Ω × 1
FREE			

No continuity while being pushed → Replace.
Continuity while being freed → Replace.

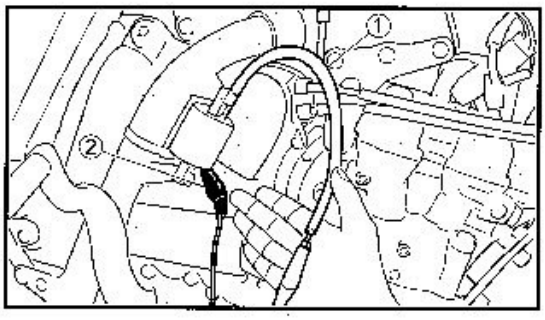


EOS26C02
IGNITION COIL INSPECTION

1. Inspect:
   - Primary coil resistance
     Out of specification → Replace.

Tester (+) lead → Orange lead ①
Tester (–) lead → Black lead ②

	Primary coil resistance	Tester selector position
	0.20 ~ 0.30 Ω at 20 °C (68 °F)	Ω × 1



2. Inspect:
   - Secondary coil resistance
     Out of specification → Replace.

Tester (+) lead → Spark plug lead ①
Tester (–) lead → Orange lead ②

	Secondary coil resistance	Tester selector position
	9.5 ~ 14.3 kΩ at 20 °C (68 °F)	kΩ × 1

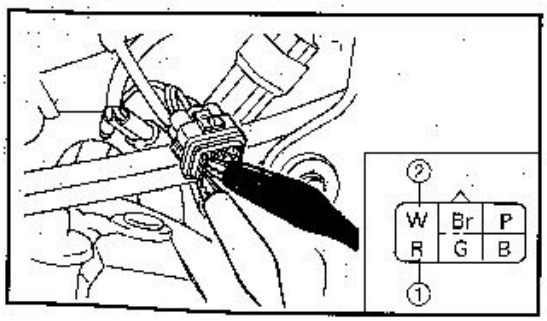
NOTE:
When inspecting the secondary coil resistance, remove the spark plug cap.

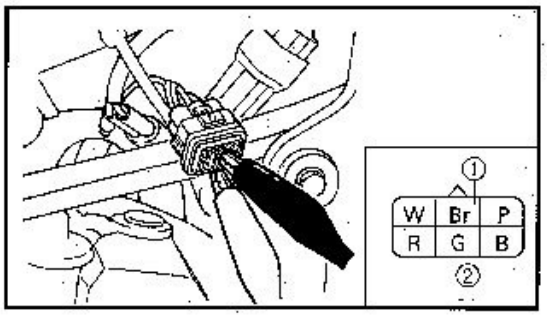
EOS26C11
CDI MAGNETO INSPECTION

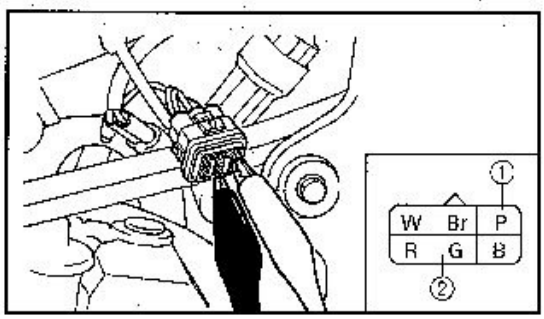
1. Inspect:
   - Pick-up coil resistance
     Out of specification → Replace.

Tester (+) lead → Red lead ①
Tester (–) lead → White lead ②

	Pick-up coil resistance	Tester selector position
	248 ~ 372 Ω at 20 °C (68 °F)	Ω × 100







2. Inspect:
   - Source coil 1 resistance
     Out of specification → Replace.

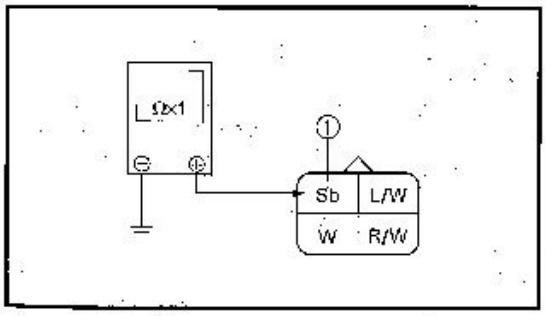
Tester (+) lead → Brown lead ①
Tester (–) lead → Green lead ②

	Source coil 1 resistance	Tester selector position
	640 ~ 960 Ω at 20 °C (68 °F)	Ω × 100

3. Inspect:
   - Source coil 2 resistance
     Out of specification → Replace.

Tester (+) lead → Pink lead ①
Tester (–) lead → Green lead ②

	Source coil 2 resistance	Tester selector position
	464 ~ 696 Ω at 20 °C (68 °F)	Ω × 10



NEUTRAL SWITCH INSPECTION

1. Inspect:
   - Neutral switch conduct

Tester (+) lead → Sky blue lead ①
Tester (–) lead → Ground

	Sb ①	Ground	Tester selector position
NEUTRAL	○	○	Ω × 1
INGEAR			

No continuity while in neutral → Replace.
Continuity while in gear → Replace.

EC828000
CDI UNIT INSPECTION

Check all electrical components. If no fault is found, replace the CDI unit. Then check the electrical components again.

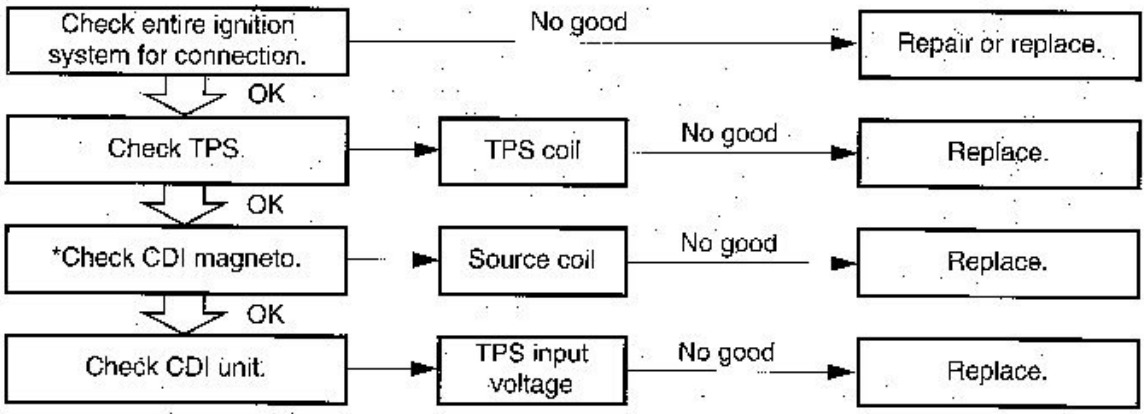
EC68000

TPS (THROTTLE POSITION SENSOR) SYSTEM

EC68100

INSPECTION STEPS

If the TPS will not operate, use the following inspection steps.



***marked: Refer to "IGNITION SYSTEM" section.**

NOTE:

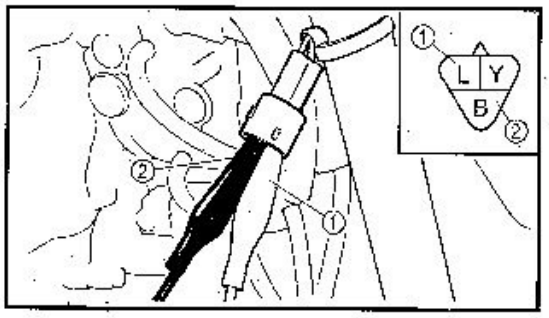
- Remove the following parts before inspection.
  1) Seat
  2) Fuel tank
- Use the following special tools in this inspection.

Pocket tester:
YU-03112/90890-03112

Inductive tachometer:
YU-8036-1
Engine tachometer:
90890-03113

FC6P40U0
COUPLERS AND LEADS CONNECTION INSPECTION

1. Check:
   - Couplers and leads connection
     Rust/dust/looseness/short-circuit → Repair or replace.



TPS COIL INSPECTION

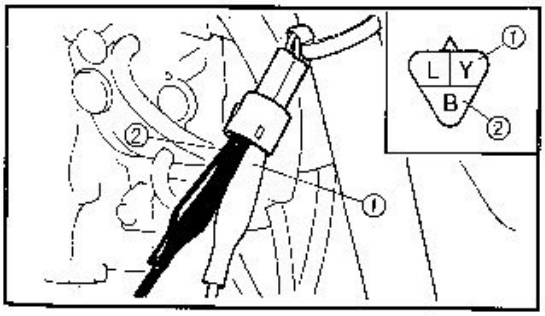
1. Inspect:
   - TPS coil resistance
     Out of specification → Replace.

Tester (+) lead → Blue lead ①
Tester (–) lead → Black lead ②

	TPS coil resistance	Tester selector position
	4 ~ 6 kΩ at 20 °C (68 °F)	kΩ × 1

2. Loosen:
   - Throttle stop screw

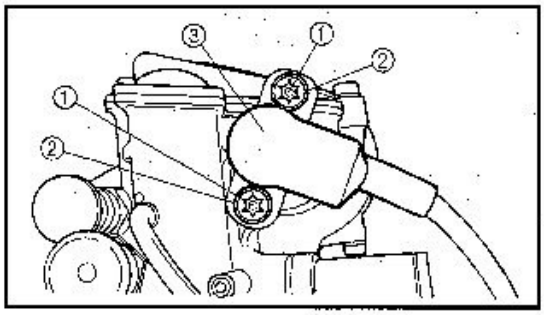
NOTE:
Turn out the throttle stop screw until the throttle shaft is in the full close position.

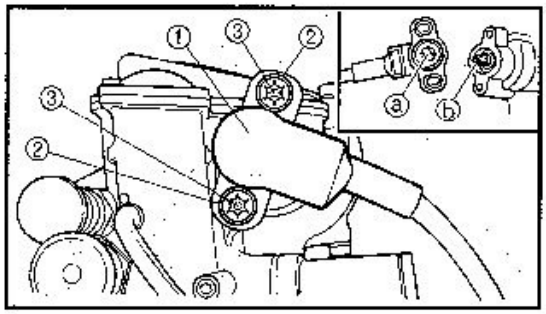


3. Inspect:
   - TPS coil variable resistance
     Check that the resistance in increased as the throttle grip is moved from the full close position to the full open position.
     Out of specification → Replace.

Tester (+) lead → Yellow lead ①
Tester (–) lead → Black lead ②

	TPS coil variable resistance		Tester selector position
	Full closed	Full opened	
	0 ~ 2 kΩ at 20 °C (68 °F)	4 ~ 6 kΩ at 20 °C (68 °F)	kΩ × 1





TPS REPLACEMENT AND ADJUSTMENT

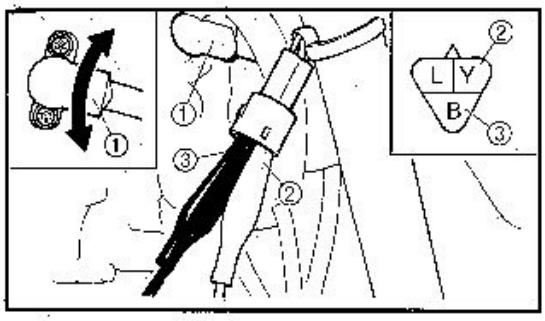
1. Remove:
   - TPS coupler
   - Screw (TPS) ①
   - Plain washer ②
   - TPS ③
2. Replace:
   - TPS
3. Install:
   - TPS ①
   - Plain washer ②
   - Screw (TPS) ③
   - TPS coupler

NOTE:
- Align the slot ⓐ in the TPS with the projection ⓑ on the carburetor.
- Temporarily tighten the screws (TPS).

4. Adjust:
   - Idle speed
     Refer to "IDLE SPEED ADJUSTMENT" section in the CHAPTER 3.
5. Calculate:
   - TPS coil resistance at idle speed.

TPS coil resistance at Idle speed:
TPS coil resistance × (0.13 ~ 0.15)

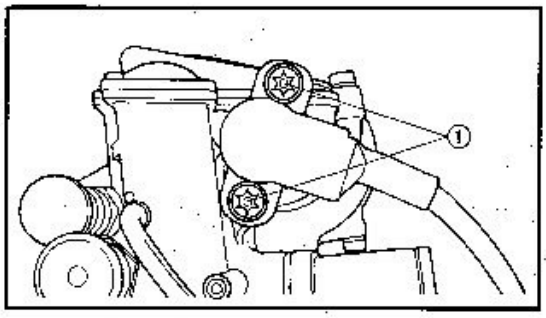
<Example>
If the TPS coil resistance is 5 kΩ, then the TPS coil resistance at idle speed is:
5 kΩ × (0.13 ~ 0.15) = 650 ~ 750 Ω
Refer to "TPS COIL INSPECTION" section about the TPS coil resistance.



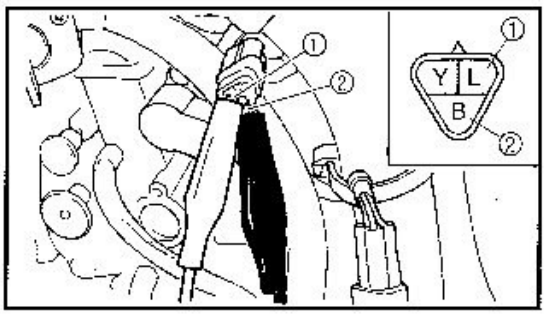
6. Adjust:
   - TPS coil resistance at idle speed

Adjustment steps:
Adjust the angle of the TPS ① to obtain the resistance calculated (example: 650 ~ 750 Ω)

Tester (+) lead → Yellow lead ②
Tester (–) lead → Black lead ③



7. Tighten:
   - Screw (TPS) ①
8. Install:
   - TPS coupler



FCR8/DCI
TPS INPUT VOLTAGE INSPECTION

1. Disconnect the TPS coupler.
2. Start the engine.
3. Inspect:
   - TPS input voltage
     Out of specification → Replace the CDI unit.

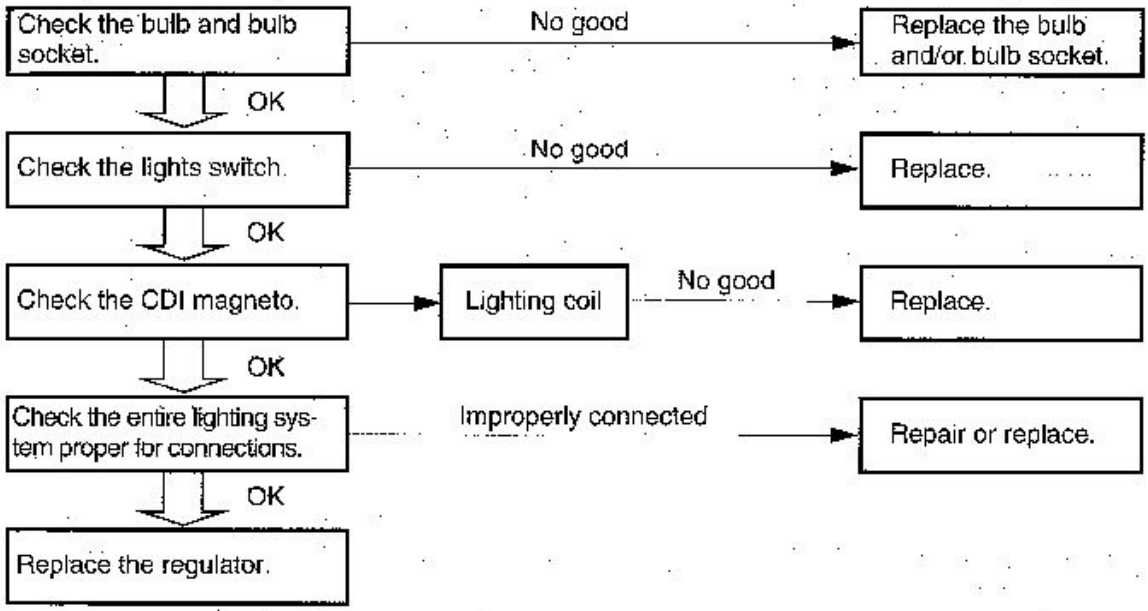
Tester (+) lead → Blue lead ①
Tester (–) lead → Black lead ②

	TPS input voltage	Tester selector position
	4 ~ 6 V	DCV-20

LIGHTING SYSTEM

INSPECTION STEPS

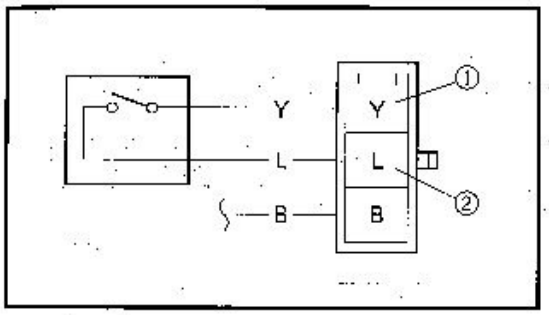
Refer to the following flow chart when inspecting the ignition system for possible ploblems.



NOTE:

- Replace the bulb and/or bulb socket.
  1) Seat
  2) Fuel tank
- Use the following special tool.

Pocket tester:
YU-03112/90890-03112

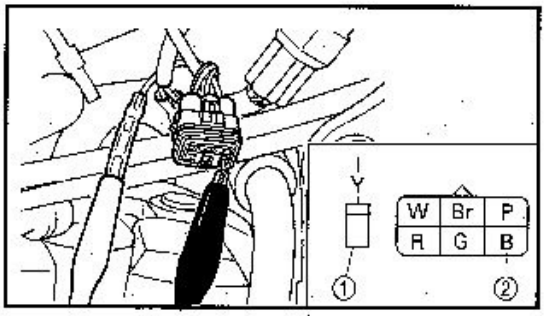


LIGHT SWITCH INSPECTION

1. Inspect:
   - Lights switch conduct

Tester (+) lead → Yellow lead ① Tester (–) lead → Blue lead ②			
	Y ①	L ②	Tester selector position
OFF	○	○	Ω × 1

No continuity while being ☼ → Replace.
Continuity while being OFF → Replace.



CDI MAGNETO INSPECTION

1. Inspect:
   - Lighting coil resistance
     Out of specification → Replace.

Tester (+) lead → Yellow lead ① Tester (–) lead → Black lead ②		
	Lighting coil resistance	Tester selector position
	0.16 ~ 0.24 Ω at 20 °C (68 °F)	Ω × 1